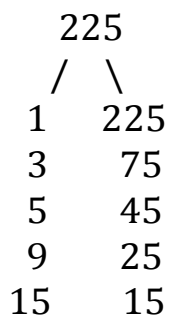


## Factoring - Review

We sometimes need to factor an expression. We can do this by building a **factor tree**, or a tree of the factors that can be derived from the number. When we build the factor tree for this, we only care about the factors that multiply together to get the number we are looking for. We do *not* need to reduce those two numbers any further, like we did when simplifying radicals.

Example: factor 225.

**Steps in factoring a quadratic equation (trinomial):**

$$Ax^2 + Bx + C = 0$$

Step 1: find factors that multiply together to get  $A \cdot C$  and add up to  $B$  (use a factor tree!)

Step 2: group the factors with the first term and the last term and the two factors you found from step 1 in the middle of those two terms

Step 3: use the distributive property to arrange those four terms into two terms

Step 4: set those terms equal to zero to solve for the unknown variable

**Factor  $s^2 - 2s - 35$**

**(remember this is the same as  $s^2 - 2s - 35 = 0$ )**

Step 1: find factors that multiply together to get  $A \cdot C$  and add up to  $B$

Step 2: group the factors with the first term and the last term

Step 3: use the distributive property to arrange into two terms

Step 4: set those terms equal to zero to solve for the unknown variable

**Factor  $8n^2 + 28n - 36$**

Step 1: find factors that multiply together to get  $A \cdot C$  and add up to  $B$

Step 2: group the factors with the first term and the last term

Step 3: use the distributive property to arrange into two terms

Step 4: set those terms equal to zero to solve for the unknown variable

**Factor  $-x^2 - 5x + 24$** 

Step 1: find factors that multiply together to get  $A \cdot C$  and add up to  $B$

Step 2: group the factors with the first term and the last term

Step 3: use the distributive property to arrange into two terms

Step 4: set those terms equal to zero to solve for the unknown variable

**Factor  $2t^2 - 18 = -9t$** 

Step 1: find factors that multiply together to get  $A \cdot C$  and add up to  $B$

Step 2: group the factors with the first term and the last term

Step 3: use the distributive property to arrange into two terms

Step 4: set those terms equal to zero to solve for the unknown variable